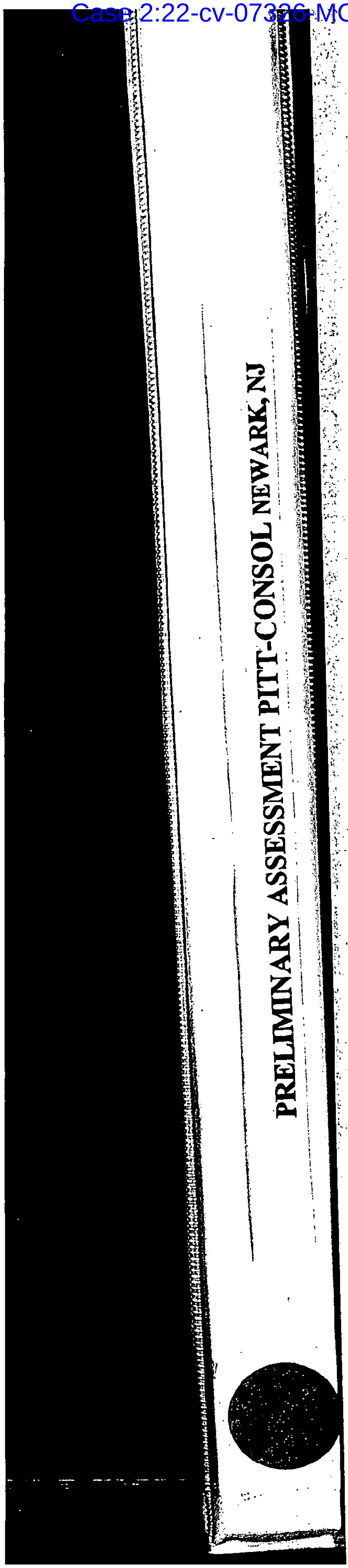
Exhibit 14.18

United States' Motion to Enter Consent Decree,
United States v. Alden Leeds, Inc. et al., Civil Action No. 22-7326 (D.N.J.)

EXHIBIT A-60

Appendix A to OxyChem's Comments in Opposition to Proposed Consent Decree, *United States v. Alden Leeds, Inc., et al.*, Civil Action No. 2:22-cv-07326 (D.N.J.)


PRELIMINARY ASSESSMENT PITT-CONSOL NEWARK, NJ

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APRIL 1998 **Project No. D2PC 7059**

Prepared by

CORPORATE REMEDIATION GROUP
An Alliance between
DuPont and The W-C Diamond Group

Barley Mill Plaza, Building 27
Wilmington, Delaware 19880-0027

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1.0 INTRODUCTION

1.1 Site Description and Geographic setting

The Pitt Consol site consists of approximately 37 acres and is located in Essex County at 191 Doremus Avenue, Newark, New Jersey 07105. The facility ceased major manufacturing operations on May 23, 1983 and the entire facility was dismantled by January of 1986. The Pitt Consol site was primarily involved in the manufacture of alkylated phenols, particularly methyl phenol (cresol). There was an alkylation unit, a natural acid plant, a synthetic cresol plant, and several above ground tank and drum storage areas operated at this site.

The site is located west of Doremus Avenue in Newark, New Jersey, adjacent to exit 15E of the New Jersey Turnpike (see Figure 1). The site is bordered on the south by the Nimco Company, to the west by Avenue P, to the north by Roanoke Avenue, and to the east by Devino Brothers property. The property consists of Block 5016, lots 1 and 3 and Block 5010, Lot 10. The closest surface water body is the Passaic River, located approximately 600 feet to the east.

The Pitt Consol site lies within an industrial zone along the Passaic River commonly referred to as the "Ironbound Section" of Newark because the area is enclosed by various rail lines. Prior to site industrialization, the entire area, which overlies flood plains and tidal mud flats, was covered with "historic fill" to allow development. The closest residential zones are located more than 2,000 feet to the west. The ground surface is generally flat and covered primarily with stone and asphalt. There is little topographic relief over the site, generally less than 3 feet, with topographic highs in the northern end of the property, and the topographic low in the southeast corner of the property. Drainage on the site is poor with standing water collecting in places. Currently the site is unoccupied, fenced, and secured. Regular security visits have been conducted twice a month by Dismantlement Consultants.

Currently, chemical plants, recycling operations, oil terminals, trucking terminals, a power generating plant, a sewage treatment plant, and other industrial facilities can be found nearby. These facilities are potential sources of contaminant releases to the

environment. Surrounding industrial properties immediately adjacent to the Pitt Consol site are:

Company	Location	Type of Operation
Ashland Chemical Company	west of Avenue P	Chemicals, dismantled 1992
Nimco Shredding Co.	south of property line	Metal Scrap Recycling
Devino Brothers	west of Doremus Avenue adjacent to eastern side of site	Metal Recycling

Neither groundwater or surface water in the area is used as a drinking water source. A petition to reclassify groundwater within the Ironbound section of Newark from a potable Class II-A designation to a non-potable Class II-B Area is currently in progress (2B Environmental, 1997).

1.2 Geologic Setting

The Pitt Consol site is underlain by four major unconsolidated units which in turn overlie a reddish brown shale bedrock unit (Brunswick Shale) at approximately 65 to 70 feet below ground surface. Unconsolidated units in ascending order (from bedrock to the surface), consist of a glacially derived silty clay confining unit; a fine to coarse water bearing sand unit (referred to in this report as the deep water bearing unit); a semi-confining silty organic clay and peat layer; and finally, a heterogeneous, unconsolidated, water bearing fill unit (referred to in this report as historic fill and the shallow water bearing unit). Groundwater is often encountered within the first foot below ground surface. Both water bearing units apparently discharge to the Passaic River to the east.

1.3 Regulatory/Investigative History

The following historical summary of events is sequenced in chronological order from 1981 to present.

- 1981

- Industrial waste permit issued by Passaic Valley Sewerage Commission (PVSC) with limits for phenols, Total Organic Carbon (TOC), and Total Organic Halogens (TOX).
- RCRA Part A permit application submitted for six hazardous waste units (drum storage pad, two drum storage cleaning areas, neutralization tank, "hot box" recycler, and waste pile).

❑ 1982

- Permits under authority of New Jersey Spill Prevention and Control Act, Discharge Prevention and Containment Countermeasure, and Discharge and Removal Plans are issued by NJDEP.

❑ 1983

- Manufacturing ceases (Pre-ECRA)

❑ 1985

- Environmental Protection Agency (EPA) conducted a Preliminary Assessment. Assessment determined that no further action was necessary and no hazard was identified (see Appendix B).
- Preliminary Environmental Assessment conducted by DuPont to assess groundwater quality and to determine the areal extent of historic lagoons (Woodward Clyde Phase 1 and Phase 2 Reports).
- NJDEP acknowledges satisfactory closure of all RCRA units.

❑ 1986

- Plant dismantlement complete
- NJPDES/DGW Permit issued (NJ0060704)
- Supplementary Hydrogeological Study (Weston)
- Resource Recovery Study (Mittlehouser)

❑ 1987 - 1994

- NPDES groundwater monitoring and quarterly compliance reports

❑ 1989

- Summary of existing environmental data (CH2M Hill)

❑ 1992

- Site Investigation (CH2M Hill)

❑ 1995

- NJPDES/DGW Permit revoked (see section 2.9.3)

- USEPA Request for Information submitted (re: Diamond Alkali Superfund Site, Passaic River Study Area, Appendix B)

❑ 1996

- Ashland Chemical Company Hydropunch Groundwater Sampling

❑ 1997

- Groundwater Reclassification Draft Petition (2B Environmental, Inc.)

❑ 1998

- Memorandum of Agreement
- PA Submitted (with this submittal)

2.0 HISTORICAL INFORMATION

2.1 Site History

The site history was determined by reviewing Sanborn Fire Maps, the title and deed history, government files, and the NJDEP Geographic Information System. A deed history for the site is summarized in the table below.

DEED HISTORY

LOT	BLOCK	TRACT	GRANTOR	GRANTEE	DATE	INSTRUMENT
10	5010	1	Reilly Tar & Chemical Corp	Pitt-Consol Chemical Co.	8-19-55	Book 3342 Page 368
1	5016	2	Reilly Tar & Chemical Corp	Pitt-Consol Chemical Co.	8-19-55	Book 3342 Page 368
3	5016	3	Reilly Tar & Chemical Corp	Pitt-Consol Chemical Co.	8-19-55	Book 3342 Page 368
Former	Roanoke	Avenue	City of Newark	Pitt-Consol Chemical Co.	9-18-57	Ordinance B-1238
Roanoke	Avenue		Pitt Consol Chemical Co.	City of Newark	8-21-57	Ordinance B-1241
Roanoke	Avenue		Pitt Consol Chemical Co.	New Jersey Turnpike Auth.	5-22-68	Book 42 79 Page 323
30	5016	5A-1	James Flockhart	Passaic River Ext. RR Co.	7-22-15	Book K-56 Page 347

LOT	BLOCK	TRACT	GRANTOR	GRANTEE	DATE	INSTRUMENT
30	5016	5A-2	Butterworth Jodson Corp.	CRR Co. of NJ	12-10-17	Book U-59 Page 278
30	5016	5A-3	Geo. A. McIntash	Passaic River Ext. RR Co.	1-5-16	Book W-56 Page 485
30	5016	5A-4	American Synthetic Dyes & Butterworth	CRR Co. of NJ	1-10-17	Book U-59 Page 485
30	5016	5A-5	Geo. A. McIntash	Passaic River Ext. RR Co.	1-5-16	Book W-56 Page 485

Maps reviewed are listed below. Copies of the Sanborn Fire maps are included in Appendix A. Map coverage of the site that were reviewed are listed below.

Fire Insurance Maps			
Year	*Volume*	*Page(s)*	*Source*
1988	Newark, N.J. Vol. 8	852 - 853	EDR Sanborn, Inc. (1-800 352-0050)
1973	Newark, N.J. Vol. 8	852 - 853	EDR Sanborn, Inc. (1-800 352-0050)
1950	Newark, N.J. Vol. 8	852 - 853	EDR Sanborn, Inc. (1-800 352-0050)
1931	Newark, N.J. Vol. 8	852 - 853	EDR Sanborn, Inc. (1-800 352-0050)
1908			EDR Sanborn, Inc. (1-800 352-0050)
1892			EDR Sanborn, Inc. (1-800 352-0050)
Wetlands Map			
Year	*Type*	*Series*	*Source*
1986	Wetlands Photomap	7.5 minute	Elizabeth Quad, NJDEP
1977	Freshwater Wetlands Map	7.5 minute	Elizabeth Quad, U.S. Dept. of Interior
Graphical Information System			
Year	Type	*Series*	*Source*
1996	Land Use/Wetlands CD-ROM	series 1, volume 3	NJDEP

Topographic Map			
Year	*Type*	*Series*	*Source*
1981	Topographic	7.5 minute	Elizabeth Quad, USGS in coop. w/ N Dept. of Trans.

A letter requesting public file information on the Pitt Consol site was sent to NJDEP on November 18, 1997. NJDEP files were reviewed by DuPont on March 5, 1998. Additional contact was made with many sections of the NJDEP that had not responded with information from their respective sections for purpose of identifying all relevant information. A summary of those contacts appear below:

Contact/Section	Communication Date	Outcome
E. Molder/Central File Room	2/23/98	Reviewed files on 3/5/98 No additional information found
S. Sedlak/Water Compliance and Enforcement	2/24/98	No information available
C. Woods/Site Remediation	2/23/98	No new information available
J. Sailer/Emergency Response	3/3/98	No information available

New Jersey's Department of Environmental Protection Geographic Information System was reviewed. Based on this review, it was determined that the site and the area surrounding the site are industrial and the land use is classified as "urban" with a subclassification of "other urban" or "built upland". A review of the freshwater wetland designation from the DEP's GIS, classified the entire site as "upland".

Based on this review of historical information, it has been determined that the Pitt-Consol site has been an industrial site since the late 1800s. A description of the industrial owners, operators, and products is included in section 2.2.

In 1957, the location of Roanoke Avenue was moved. In 1969, a portion of the northern corner of the property was acquired by the New Jersey Turnpike Authority to accommodate widening of the turnpike.

2.2 Industrial History

The Pitt-Consol site has been an industrial site from the late 1800s. From the late 1800s until 1983, the facility manufactured road tar, cresols, phenols, and cresylic acid. In 1983, all manufacturing at the Pitt-Consol site was discontinued. Dismantling of all production facilities was completed by January 1986. The site is now inactive.

A summary of the industrial history of the site is presented below.

Industrial History

Date	Industrial Operator
late 1880s - 1955	Judson Butterworth, Inc./Reilly Tar and Chemical, Inc.
1955 - 1966	Pitt-Consol Chemical Company
1966 - 1981	Pitt-Consol Chemical Company (owned by Conoco, Inc.)
1981 - 1983	Pitt-Consol Chemical Company (owned by DuPont)

2.3 Raw Materials, Products, and Formulations

In addition to raw materials and products, Pitt-Consol generated waste material which consisted primarily, in terms of volume, of wastewater. The plant wastewater was discharged to a publicly owned treatment works (POTW): the Passaic Valley Sewarage Commission facility. Wastewater was discharged to PVSC via the municipal sewer system.

Additional quantities of process residuals were also generated by the Pitt-Consol site. Of these additional residuals, only a small quantity of waste was shipped off-site. The majority of these residuals remained on-site and were either reworked in the production process or burned in the plant boilers for energy recovery. These residuals and their disposition is noted below.

Material Name	Typical Annual Volume (pounds)	Comments
a. Raw materials/Products/Co-products:		
Coal	~ 7-20 million	
Cresol/Cresylic Acid	~ 10-30 million	
ortho-cresol	13,320,750[(1)]	
meta-cresol	unknown	
para-cresol	unknown	
Phenols	unknown	
2,3,6 Trimethyl phenol	2,634,171[(1)]	
2,6 Dimethyl phenol (xylenol)	2,291,698[(1)]	
2,3 Xylenol	unknown	
2,4 Xylenol	unknown	
2,5 Xylenol	unknown	
Mercaptans	unknown	
Methanol	unknown	
Hexane	unknown	
Olefin	unknown	
Dibutyl para cresol	unknown	
Mono butyl meta cresol	unknown	
Dinonyl ortho cresol	unknown	
2,4 dibutyl phenol	unknown	
2,6 dibutyl phenol	unknown	
6 butyl 2,4 methyl phenol	unknown	
Esters, such as synthetic sperm oil	unknown	
Cyclohexane	unknown	
b. By-product:		
Mixed cresylic acid	4,846,794[(1)]	Reworked
c. Residuals:		
Wastewater discharged to POTW	309 million[(1)(2)]	Via sewer to PVSC
Still bottoms (from cresol/ cresylic acid manufacture)	3,574,600[(1)]	Energy recovery

Material Name	Typical Annual Volume (pounds)	Comments
Inert solids contaminated with Cresol/Cresylic Acid	24,000	
Methanol absorber vent	120,000(1)	Energy recovery
Spent catalyst	29,300(1)	Off-site recovery
Recovered organics	80,000(1)	Reworked

Notes:

(1) 1981 Plant Annual Production (RCRA 3007 Questionnaire, Appendix B, Attachment 4).

(2) Volume was estimated from 1982 POTW quarterly discharge/monitoring reports, 1981 data unavailable (RCRA 3007 Questionnaire, Appendix B, Attachment 4).

2.4 Past Processes

The Pitt-Consol site began industrial operations in the late 1800's. Little information is available on production operations at the facility prior to its acquisition by Pittsburgh Consolidated Coal Company (Pitt-Consol) in 1955. Operations at the site by Judson-Butterworth, Inc., and later by Reilly Tar and Chemical, Inc., are reported to have included the manufacture of road tar and chemicals derived from coal processing such as phenols, cresols and cresylic acid.

After the facility was acquired by the Pittsburgh Consolidated Coal Company, in 1955, operations were upgraded and expanded. During this period, the plant processed various products related to coal tars and their derivatives. A new refinery completed in 1956 allowed production at the site to be increased.

The new refinery included a new refining process for these chemicals, based on the Duosol principle of refining. This process consisted of contacting crude cresylic acids contaminated with neutral hydrocarbons and aromatic mercaptans with aqueous methanol and hexane in a Scheibel tower. The aqueous methanol dissolved the cresylic acids and slowly descended through the tower. It was scrubbed free of mercaptans and neutral oils by hexane as it rose through the same tower. Next, the hexane solution was stripped off and the remaining raffinate, rich in aromatic mercaptans, served as the feed-stock for thiophenol, thiocresols and thioxylenols. The aqueous methanolic solution was also

stripped from the refined cresylic acid and reused, as was the hexane. This plant was brought up to a capacity of over 33 million pounds per year.

An alkylation plant went into production in 1961 and was in use until 1970 at the site. The plant was used to upgrade cresols, xylenols and aromatic mercaptans into alkylated derivatives which have use as rubber chemicals; antioxidants for gasoline, lube oils and rubber; and other chemical intermediates.

In 1966 a synthetic plant was built by Pitt-Consol to manufacture synthetic cresylic acids from methanol and phenol. The original 10 million pound per year plant was upgraded to a capacity of 50 million pounds per year. The normal product distribution was 60 percent ortho cresol, 25 percent xylenol and 15 percent other methylated phenols.

In 1971, the natural cresylic acid plant was shutdown and production in the alkylation plant was reduced.

All production processes at the Pitt-Consol site were terminated in May 1983. All production facilities were dismantled by January 1986. The site is now inactive with no present production processes.

Refer to Appendix B (Attachment 3) for further description of past production processes at the Pitt-Consol facility.

2.5 Interpretation of Aerial Photographs

Aerial photographs were reviewed in a study conducted by Woodward Clyde (1985) to determine historical land use at and adjacent to the Pitt Consol site. Low altitude aerial photography from 1954 to 1984 was reviewed by Woodward Clyde.

Woodward-Clyde Aerial Photograph review		
Year	Photo	Source
1984	unknown	EROS Data Center
1966	unknown	EROS Data Center
1954	unknown	EROS Data Center
1971	unknown	National Oceanographic Service
1962	unknown	National Oceanographic Service
1951	unknown	National Oceanographic Service
1944	unknown	National Oceanographic Service
1970	unknown	Pitt-Consol
1965	unknown	Pitt-Consol
1958	unknown	Pitt-Consol
1957	unknown	Pitt-Consol
1955	unknown	Pitt-Consol
1954	unknown	Pitt-Consol

The purpose of the aerial photo review was to identify changes in land use such as drainage, vegetation, and industrial structures with particular emphasis on determining former lagoon boundaries. The results of their review are summarized in Plates 2 through 7 of the Woodward Clyde Report located in Appendix B, Attachment 4. Note that the scale referred to on the plates indicates the altitude, the actual plan view scale on the plates is approximately 1 inch equals 600 feet.

From these plates, it can be seen that considerable changes with respect to plant building and tank locations occurred in the north central portion of the site. The southern half of the plant did not change much over the period covered by the aerial photographs (1954-1984). The status and extent of the lagoons did change significantly over time with all lagoons filled in by 1970.

Lagoon	Status		
	1954-1957	1957 - 1966	1966 - 1970
A	Closed and filled	-------------	-------------
B	Lagoon in use as a storage area for liquid material with a (- 70%) change in area, steel dikes removed	Closed and filled	-------------
C	Lagoon in use as a storage area for liquid material with a (- 5%) change in area	Closed and filled	-------------
D	Lagoon in use as a storage area for liquid material with a (+ 10%) change in area	Closed and filled	-------------
E	Lagoon in use as a storage for liquid materials	Lagoon in use as a storage area for liquid material with a (+ 25%) change in area	Closed and filled
F	Closed and filled	-------------	-------------
G	Lagoon in use as a storage for liquid materials	Closed and filled	-------------

Other aerial photography reviewed for this assessment is listed below.

Subsequent Aerial Photographs Reviewed		
Year	Photo	Source
11/19/97	GEOD97-1349 1-3	GEOD
6/18/95	unknown	unknown
03/31/91	F3630 13-111	Aerial Data Reduction Services
01/05/90	K3143 15-565	Aerial Data Reduction Services
04/20/86	0134 12-7	Aerial Data Reduction Services
03/16/85	160-85 3-58	Aerial Data Reduction Services
04/08/81	185-81 8-7	Aerial Data Reduction Services
12/13/78	017-79 2-172	Aerial Data Reduction Services

From 1978 to 1981 the plant appears to have had no dismantlement or construction activity. A plant engineering diagram dated August 19, 1981 is included as Figure 2 of this report. Between 1981 and 1985, sixteen of nineteen tar tanks along the southern portion of the site were dismantled. Considerable dismantlement activities continued through 1985 and by April of 1986, all buildings and other structures had been

dismantled except the Administration building and the Change House located in the eastern corner of the property. A sump located in the north central portion of the site, just south of relocated (9/18/57) Roanoke Avenue was also still present. This sump collected process wastewater and surface water for discharge to the PVSC.

Between 1986 and 1990, the Administration building and the Change House building were dismantled and the Devino Brothers metal recycling operation is in place along the former Passaic River Extension Railroad Company property located just west of Doremus Avenue. No changes were observed through March 1991. By 1996, vegetation had become established over most of the site and in the area of the former tar tanks some dark colored soil staining could be observed and some buses from the Nimco Bus Division were being temporarily stored on the site.

DuPont had the site flown in November 1997 by GEOD Corporation to assist in generating a scaled site base map showing vegetation, topography, site wells and piezometers, building foundations, fence lines and roadways (see Figure 3). The aerial photo that shows the site as it was in the 1996 photo reveals that the Devino Brothers metal recycling operation had encroached upon the Pitt Consol site storing scrapped vehicles and vehicle components/parts of various types without authorization. The unauthorized use occurred once before by Devino Brothers in 1995.

2.6 Known Discharges

Effluent wastewater was discharged under permit to the treatment facilities of the Passaic Valley Sewerage Commission (PVSC) via the PVSC municipal sanitary sewer. There are no other known discharges. No liquid wastes were stored in impoundments, lined or otherwise, subsequent to closure of the on site lagoons. All wastewater was stored on site in a 50,000 gallon wastewater holding tank for discharge to the PVSC. In Attachment 4 of Appendix B (page 7, item 3), the wastewater was characterized as:

- pH 8
- phenol 0.1% to 1%
- methanol 0.1% to 1%
- dimethyl ether 0.1% to 1%

❑ Anisole	90 parts per million
❑ Cresol	0.1% to 1%
❑ 2,4 dimethyl phenol	0.1% to 1%
❑ cresylic acid polymer	0.1% to 1%
❑ chromium (possible)	no analysis

The annual volume of wastewater generated was reported to be 309MM pounds/year to the PVSC with annual disposal costs of $52M.

2.7 Remediation Activities and Investigations

Since the dismantlement of the plant, a number of studies and environmental investigations have been conducted. Each of these investigations and a brief summary is listed below.

2.7.1 1985 Woodward-Clyde Phase I Report (June 7,1985)

Aerial Photo Review - The historical review of aerial photography has previously been summarized Section 2.5 above.

2.7.1.1 Geophysical Survey

A terrain conductivity survey was conducted in the area of the former lagoon identified in the aerial photographs to assist in identifying areas to conduct further test borings. The report concluded that, in general, the terrain conductivity results were in close agreement with the aerial photographic interpretation of the former lagoon locations.

2.7.1.2 Soil Characterization

Twenty seven boring locations were drilled based on the terrain conductivity survey to determine the nature and thickness of the fill material (upper water bearing unit). The boring locations are shown in Figure 4. The borings were drilled to a depth where natural unconsolidated material was identified, generally

a peaty, dark gray to dark brown silty clay. The fill unit thickness was determined to range from about two to twelve feet in thickness with the northern and central part of the site having a fill thickness of eight to 12 feet and the eastern portion of the site having a fill thickness between five and eight feet.

2.7.1.3 Well Installation

Seven shallow piezometers (P-1 through P-7) in the fill unit (or upper water bearing unit) were installed. Descriptive logs and well construction details are included in Appendix C, well locations are shown in Figure 4.

2.7.1.4 Groundwater Sampling

Water samples were collected from all seven shallow wells (P-1 through P-7). The samples were analyzed for total phenolics, total organic halogen, and for total organic carbon. Analytical results are included in Appendix D. An oily sheen was observed in well P-7 during the sampling event.

2.7.1.5 Water Levels

Water Levels were collected to determine groundwater flow direction in the shallow water bearing zone. The water table was found to be within 0.5 feet to 3 feet below ground surface, with groundwater in the upper water bearing unit flowing toward the Passaic River. A hydraulic gradient was calculated across the site (from west to east) at 8×10^{-4}.

Water levels were also measured at all seven wells over the course of a week to determine if tidal fluctuations of the Passaic River could be observed in wells screened in the upper water bearing unit beneath the Pitt Consol site. No tidal effects were observed in any of the upper water bearing unit wells.

2.7.1.6 Soil Sampling

Soil samples were collected from four locations (T-1 through T-4). All sample locations were in the vicinity of tar tank farms (see Figure 4). Samples were collected from three intervals at each location (0'-1', 1'-2', and 2'-3' below ground surface). Samples were analyzed for total phenolics and total organic carbon. Sample results are presented in Appendix D.

2.7.2 1985 Woodward Clyde Phase II Report (November 8, 1985)

2.7.2.1 Well Installation

Seven shallow piezometers (P-8 through P-14) in the fill unit (or upper water bearing unit), and one deep monitor well (PD-11) were installed. Descriptive logs and well construction details are included in Appendix C, well locations are shown in Figure 4. The shallow piezometers were installed to help in determining the thickness of the fill zone.

2.7.2.2 Hydraulic Conductivity

Slug tests on fourteen shallow wells (P-1 through P-15, excluding P-9) were conducted to characterize the hydraulic properties of the upper water bearing unit (fill unit). The range of hydraulic conductivity varied from 6.0×10^{-1} cm/s to 5.6×10^{-3} cm/s.

2.7.2.3 Pump Tests

Limited duration pump tests were conducted on four wells (P-8, P-5, P-11S, and P-13) to verify field slug tests at individual wells and to determine an averaged hydraulic conductivity over a larger portion of the aquifer. In each case the pumping of the tested well had no measurable effect on the associated observation wells. Pumping rates varied from 1.25 to 24 gallons per minute (gpm).

2.7.2.4 NAPL Study

To determine if non-aqueous phase liquids (NAPL) were present in site wells, a bottom loading bailer was used to check for LNAPL and a bilge pump with the intake tubing placed at the bottom of the well was used to check for DNAPL. No LNAPL was detected in any of the site wells, but DNAPL was detected in shallow wells P-2, P-3, P-10, and P-11S. All of these wells are located in the vicinity of former lagoons. Upon completion of the pump test at well P-5, NAPL was found to be present. In the summary of findings, it was suspected that the NAPL was pulled into the well during the course of the pump test.

2.7.2.5 Water Levels

Two rounds of water levels were collected from 15 wells to determine groundwater flow direction in the shallow water bearing zone. The data from each round when contoured had a trough-like expression corresponding with the approximate location of the sewer line in the vicinity of the former location of Roanoke Avenue. It was suspected the sewer line is acting as a groundwater sink in the upper water bearing unit due to higher permeability fill material around the sewer line. It was also identified as a potential migration pathway to transport contaminants in the upper water bearing unit off-site.

2.7.2.6 Groundwater Sampling

Water samples were collected from all fifteen shallow wells (P-1 through P-15). The samples were analyzed for total phenolics and for total organic carbon. Analytical results are included in Appendix D.

2.7.3 1986 Weston Hydrogeological Study (January 1987)

2.7.3.1 Well Installation

Thirteen shallow piezometers in the fill (PZ-1 through PZ-15 excluding PZ-4 and PZ-8), 10 to 15 feet in depth, and three deep monitor wells (PD-1, PD-5, and PD -7) were installed. Descriptive logs and well construction details are included in Appendix C, well locations are shown in Figure 4. The shallow piezometers were installed to better define the hydrologic relationship of the upper water bearing zone to a sewer line located proximal and parallel to the former location of Roanoke Avenue (relocated in 1957). The three deep wells were installed to characterize groundwater quality in the lower water bearing zone, to determine hydraulic characteristics through a pumping test of the lower hydraulic zone, and to assess the degree of hydraulic connection between the upper and lower water bearing units beneath the site.

2.7.3.2 Pump Tests

Limited duration pump tests were conducted at four well cluster pairs (PD-1/P-1, PD-5/P-5, PD-7/P-7, and PD-11/P-11S) by pumping the deep well to see if there was any effect on the associated shallow well. In each case the pumping of the deep well had no measurable effect on the associated shallow well. All wells

(except PD-7) pumped dry rapidly. Estimated hydraulic conductivities ranged from 4.11 x 10^{-3} centimeters per second (cm/s) to 7.05 x 10^{-4} cm/s.

2.7.3.3 Groundwater Sampling

Water samples were collected from four deep wells (the three newly installed wells [six weeks after development] and PD-11). The samples were analyzed for total phenolics and for total organic carbon. Analytical results are included in Appendix D.

2.7.3.4 Water Levels

Water Levels were collected to determine groundwater flow direction in the shallow water bearing zone and its relationship to the sewer line. The water level data when contoured had a trough-like expression corresponding with the approximate location of the sewer line.

2.7.4 1986 Mittlehauser Coal Tar Waste Resource Recovery and Remediation Feasibility Evaluation (March 1987)

Eighteen test pits were excavated during the Mittlehauser study in the vicinity of former lagoons. The physical descriptions and locations of the test pits can be found in Appendix C. A composite sample of coal tar and sludge collected by Mittelhauser was subjected to analysis for physical characteristics, total metal content, and organic analysis. The last procedure included analysis for base-neutral, acid extractable, and volatile organic compounds. Finally, the composite coal-tar sample was leached using the proposed TCLP procedure and the leachate analyzed for organics. The results of the performed analyses are presented in Appendix D.

Two varieties of the sludge were described by Mittelhauser: a tar phase, which was described as pliable and shiny, with properties similar to warm asphalt; and a coal phase, which is hard, and breaks in a conchoidal fracture pattern. Both phases were considered by Mittelhauser to represent the same material, because they were found together. Inclusions of brick fragments were observed in the coal phase material, which were interpreted by Mittelhauser as evidence that the material was at one time a liquid.

The physical characteristics analysis showed the sludge material to have a high solids and ash content, and relatively low BTU value, of 7,620 BTU/lb, which would severely limit its use as a fuel supplement. This was attributed by Mittelhauser as evidence that the material was derived from tank bottoms, and that it had been mixed with soil material.

The Mittelhauser metals analysis showed the coal-tar material to be relatively low in metal content for a coal derived product. The highest individual metal concentrations were for lead and barium, at 580 and 110 mg/ kg, respectively. Mittelhauser concluded that metals would not be a limiting factor to any potential beneficial reuse of the coal material.

The organic analysis showed that the material sampled was typical of coal tars. Eleven individual base-neutral organics, or polynuclear aromatic hydrocarbons (PAHs) were identified in the coal-tar sample with a total concentration in excess of 40,000 mg/kg. However, all the compounds identified exhibited relatively low aqueous solubility. Five compounds were identified in the TCLP extract at a total concentration of 3.32 mg/l. None of the compounds exceeded the Toxicity Characteristic limits.

No acid extractable compounds were identified in the coal tar sample above detection limits. Low levels of acid compounds were found in the TCLP extract, but these were below the proposed limits. In the volatile organic fraction of the analysis, six compounds were identified in the coal tar sample, with a total concentration of 4.71 mg/kg.

The results of the composite coal-tar sample analysis suggest that the material may not be suitable for use as a fuel supplement, due to low BTU content. No other potential beneficial reuse of the material, such as asphaltic concrete, has been investigated.

The chemical analysis performed on the sample indicate that the material has the typical composition of coal tars. With the exception of flash point, analytic data suggest that the materials on-site will not likely be classified as hazardous. The low flash point measured was considered by Mittelhauser as possibly unrepresentative of the material, because the tar has been exposed to weathering for an extended period of time. The concentrations of organics measured in the TCLP extract were generally below the proposed TCLP limits. Benzene was the only compound that slightly exceeded its TCLP limit.

2.7.5 1987-1994 NPDES Groundwater Monitoring

The groundwater monitoring program at the site is summarized in section 2.9.3 of this report. Trend plots for total phenolics and for total organic carbon are also included in Appendix E.

2.7.6 1989 CH2M Hill Summary of Existing Environmental Data

As of the date of this report, Du Pont had been the owner of the Pitt-Consol Site for 8 years. Significant data had been accumulated on hydrogeologic conditions, composition and distribution of fill materials, and quality of groundwater beneath the site. Data and results of these previous investigations have been submitted to the NJDEP. This report summarized and provided a comprehensive data summary available to this point (1989). The conclusions of the summary report are presented below:

- All structures on the site have been razed. Little is known of the early operations which began in the late 1800s. Several lagoons were observed in aerial photographs of the site from the 1940s to the 1970s, in the west, north, and central parts of the site. Neither the function of the lagoons nor the method of closure is known.
- A layer of fill exists over the entire site. Borings, wells, and test pits installed throughout the site have been used to characterize the fill. The thickness varies from less than 2 feet at the southwestern corner, to approximately 10 feet in the center and northeast portions of the site.
- Much of the fill consists of rubble, including bricks, concrete, and wood debris in a sandy matrix. Other materials, including coal-like and tar-like materials have been observed in areas of the site, primarily on the western half of the facility. An oily, creosote-like staining was observed throughout much of the northern half of the site.
- The site was constructed on filled land, over tidal marshes adjacent to the Passaic River and Newark Bay. The marsh deposits consist of a peaty clay. This peaty clay is approximately 25 feet thick in the central and eastern portions of the site, but apparently thins out along the west (inland) side.
- The peaty clay is underlain by medium to coarse sands, probably deposited in a fluvial environment. The sand unit is approximately 5 to 10 feet thick beneath the central and eastern parts of the site, but thickens to the west, where it may interfinger with the peaty clay.

- Glacial sediment, composed of silty clay approximately 20 feet thick, underlies the sand unit. This material is likely to underlie the entire site, although borings deep enough to penetrate it have been drilled only in the central portion of the site.
- Bedrock beneath the silty clay is the Brunswick Formation, composed of reddish-brown shale and sandstone. The bedrock surface was encountered at 60 feet below the ground surface. The upper 10 feet of the Brunswick at the site are heavily weathered, although competent below that depth.
- The fill unit forms an unconfined water-bearing zone. In parts of the site, the upper zone is saturated to grade. The maximum unsaturated zone observed is approximately 3 feet. Hydraulic conductivities of 5.6×10^{-3} to 6.0×10^{-1} cm/sec were measured in slug tests and short-term pumping tests. Flow in the upper zone is strongly influenced by a sewer line that traverses the northern part of the property.
- Groundwater samples from the fill unit consistently exceed the NJPDES groundwater limits for TDS (500 mg/1). With the exception of well P-1, in the extreme northeast corner of the site, the samples also exceed the NJPDES limit for total phenols (0.03 mg/1). Based on one analysis, well P-10 exceeds the limit for volatile organics (0.1 mg/1). Wells P-5, P-7, and P-10 exceed the limit for total toxic organic pollutants (0.05 mg/1). No appreciable change in water quality has been observed throughout the NJPDES monitoring program.
- No floating NAPLs have been observed at the site, although an oily sheen on groundwater has been reported. Dense NAPLs have been observed in shallow wells in the west, north, and central parts of the site.
- The sand unit beneath the peaty clay forms a lower water-bearing zone. A range of hydraulic conductivities from 4.3×10^{-5} to 2.0×10^{-3} cm/sec has been measured in this zone. An apparent inability of this zone to sustain pumping suggests that the sands may exist in discontinuous lenses, rather than as a single layer. Hydraulic gradients of the lower water-bearing zone are not well defined.
- Groundwater samples from the lower water-bearing zone consistently exceed the NJPDES limit for total phenol and TDS. The high TDS values, may be related in part to proximity to tidal water. Volatile organic compounds exceeded the limit of 0.01 mg/l in all deep wells. The highest concentrations were observed near the center of the site, and at the western and eastern extremities. Major qualitative and quantitative differences in composition of the volatile organic compounds in the upper and lower water-bearing zones strongly suggests an off-site contribution to the deeper unit.

Investigations to date have shown the fill material to display a high degree of physical heterogeneity. The overall thickness and general composition have been described from

logs of borings and wells placed throughout the site. Most of the fill is composed of reworked soil (clay, silt, sand, and gravel) and building rubble (brick, wood, concrete, and glass). The fill is saturated throughout most of its thickness. Depth to the water table varies from approximately 3 feet to less than 0.5 foot. Various coal-derived products can be found in the fill. The distribution of those, however, varies significantly throughout the site.

An assumption from early investigations that the majority of coal tar and coal sludge would be located in areas identified as former lagoons from historic aerial photographs of the site has been hard to substantiate based on the Mittelhauser test pit investigation. Most of the coal-tar materials encountered at the site during this investigation were outside the believed lagoon locations. Some coal-tar material was found within lagoon F and isolated pockets of the material were observed in lagoon B. However, a general lack of correlation exists between the Phase I aerial photograph interpretation and the results of the Mittelhauser study. This lack of correlation would be consistent with the following hypotheses:

- Tar and sludge may have been removed from the former lagoons prior to backfilling.
- Tar and sludge may have been displaced into surrounding areas during the backfilling.
- All the former lagoons identified from the aerial photograph interpretation may not have been used for sludge disposal.
- Other lagoons, potentially containing tar and sludge, may have predated the earliest photographs used for the interpretation (1944).

2.7.7 1992 CH2M Hill Site Investigation Summary & Report of Findings (February 1992)

2.7.7.1 Well Search

A well record search was conducted of wells within a 0.5 mile radius of the site. Approximately 300 well records were obtained. No production, recovery, or domestic wells were identified within a 0.5 mile radius of the site.

2.7.7.2 Tidal Study

A tidal study was conducted to determine potential tidal effects on groundwater flow. Four deep wells (PD-1, PD-5, PD-7, and PD-11) and their corresponding shallow wells (P-1, P-5, P-7, and P-11S) were monitored. Barometer measurements were also collected to account for water level responses to changes in barometric pressure. The study concluded that there were no tidal effects on the shallow water bearing unit and there was some effect on the lower water bearing unit. Though the tidal study indicated a tidal influence on water levels in the lower water bearing unit, the study concluded that at no time did the tidal effects cause the hydraulic gradient to change enough to significantly affect the predominant flow direction across the site. The study also concluded that the tidal impact quickly dissipates across the site in the westward direction, with wells installed in the northwest corner of the site not affected by tidal fluctuations at all.

2.7.7.3 Well Installation

One additional well was installed in the lower water bearing unit (PD-2) in the northern corner of the property where no other deep wells existed. The well provided additional lithologic, stratigraphic, and groundwater quality information for the site.

2.7.7.4 Groundwater Sampling

Four deep wells (PD-1, PD-2, PD-5, PD-7, and PD-11) and their corresponding shallow wells (P-1, P-2, P-5, P-7, and P-11S) were sampled. Each well had groundwater analyzed for VOCs and BN/AEs. Results indicated the presence of VOCs as well as BN/AEs in both the upper (unconfined) and lower (semi-confined) water bearing units. The primary volatile constituents include benzene, toluene, ethylbenzene, and a single occurrence of chlorobenzene. The acid extractable fraction consisted primarily of phenolic compounds, and napthalene and a variety of base neutral compounds. Volatile concentrations in the lower water bearing unit tended to be an order of magnitude higher than in the corresponding shallow wells. Phenol and napthalene concentrations tended to be one to three orders of magnitude greater than in the shallow zone. Base neutral compounds had much greater concentrations in the upperzone compared to the lower water bearing zone.

2.7.7.5 Groundwater Flow

Groundwater flow in the lower water bearing unit was determined to be generally to the southeast across the site. Water levels in the upper water bearing unit were not contoured, but were used to indicate that a downward vertical gradient exists between the upper and lower water bearing units.

2.7.7.6 Hydraulic Conductivity

Slug tests on the five deep wells were conducted to characterize the hydraulic properties of the lower water bearing unit. The range of hydraulic conductivity varied between 4.4×10^{-3} cm/s to 3.9×10^{-4} cm/s.

2.7.7.7 Soil Sampling

Five surface soil samples were collected from former tanks 13 and 21 (in AOC 19, see Figure 4 for sample locations) to evaluate the impact on soil, if any, from PCBs reported in sludge from the former tanks. The soils were collected from the six-inch interval immediately below ground surface. All samples were found to be non-detect for PCBs.

2.7.7.8 Lagoon Boundary Delineation

Test pits were excavated to characterize the depth, extent and physical properties of the former lagoons. The test pit locations and descriptive logs can be found in Appendix C.

2.7.8 1995 USEPA Request for Info (Re: Diamond Alkali Superfund Site, Passaic River Study Area

In response to an Environmental Protection Agency (EPA) request for information a document was prepared addressing site ownership, permits, manufacturing processes, waste practices, etc. A copy of this response has been included as Appendix B.

2.7.9 1996 Ashland Chemical Company (Re: Results of Hydropunch Groundwater Sampling) (August 5, 1996)

In August 1995, 11 groundwater samples were obtained by representatives of Ashland Chemical Company and analyzed for benzene. The samples were collected from

locations approximately 50 to 60 feet eastward of the Pitt Consol fence line along Avenue P. The samples were obtained between the southwest corner of the site (slightly south of P-5) along a linear line north eastward extending to just beyond the intersection of Foundry Street and Avenue P. The benzene concentrations ranged from 0.79 ug/l to 32 ug/l, with the higher concentrations generally found in the flow direction indicated on the map provided by Ashland Chemical Company (east northeast).

2.7.10 Investigative Costs

The cumulative cost of these investigations and ongoing maintenance/operational costs is estimated to be 1.5 million dollars to date beginning when the plant ceased operation (excluding costs associated with plant dismantlement). In addition, DuPont has paid approximately 803,000 dollars in property taxes over the past 5 years.

2.8 Sampling Data

Sample data has been compiled from various environmental reports summarized above and included in Appendix D. Groundwater data has been compared to New Jersey Class II a groundwater criteria although a petition to reclassify the groundwater for the area has been submitted to reclassify the groundwater to IIb. Reported concentrations that exceeded the comparison criteria are identified within brackets. Three tables have been provided in Appendix D—one for soil results, another for groundwater (detected compounds only), and lastly all groundwater results.

2.9 Permits

2.9.1 RCRA Permit #NJD004948188

A RCRA Part A permit application (Permit #NJD004948188) for the Pitt Consol site was submitted to EPA (Region II) on November 19, 1980. The permit was submitted for 6 hazardous waste units: drum storage pad, two drum storage cleaning areas, neutralization tank, "hot box" recycler, and waste pile. In April 1985, the RCRA facilities were closed and approved as complete closure by the NJDEP. Copies of correspondence letters are included in Appendix B (Attachment 12).

2.9.2 Passaic Valley Sewage Commission (PVSC) Permit #20401072

With the exception of general run off, all plant effluent discharge was via the Passaic Valley Sewerage Commission's sanitary sewer system. The permit was canceled in 1986, corresponding to the closure of the facility.

2.9.3 New Jersey Pollutant Discharge Elimination System (NJPDES) Permit # NJ0060704

In a letter dated April 8, 1986, Pitt Consol received a draft NJPDES permit from the State of New Jersey Department of Environmental Protection (Permit No. NJ0060704). The permit required the implementation of a groundwater monitoring program, the installation of new monitoring wells, and the implementation of a pump test on monitor well P-11D while monitoring three other deep wells. Groundwater monitoring requirements consisted of monitoring four (4) shallow wells and four (4) deep wells on a quarterly basis for the following parameters:

Parameter	Limitation	Sampling Frequency
Top of Casing Elevation		determine once, report quarterly
Depth to Water		quarterly
Toxic Pollutants*	**	once with first sampling
Total Phenolics	0.3 ppm	quarterly
pH	5 - 9 S.U.	quarterly
Total Dissolved Solids (TDS)	500 ppm	quarterly
Total Organic Carbon (TOC)		quarterly
Total Organic Halogen (TOX)		quarterly

* - GCMS scan for volatile organic compounds, acid extractable compounds plus identification of the next ten largest peaks, and base/neutral organic compounds, GC analysis for pesticides and PCBs, and analyses for metals and total cyanides.
** Total concentration for all volatile organic chemicals shall not exceed 10 parts per billion (ppb) and the concentration for all volatiles, acid extractables, and base neutrals shall not exceed 50 ppb.

Groundwater monitoring began in 1987 and continued quarterly through 1994. Noncompliance with permit limitations above have been reported for each quarter. In a letter dated February 15, 1995, the NJPDES permit for Pitt Consol was officially revoked. The facility's former Discharge to Groundwater (DGW) permit was determined by the NJDEP to meet the NJPDES permit exemption criteria established under NJPDES

rule amendment N.J.A.C. 7:14A-6.14(b). DuPont discontinued groundwater monitoring following the fourth quarter 1994.

2.10 Enforcement Actions

On February 29, 1984, an Administrative Complaint was filed for alleged violations of Section 6(e) and 15 of the Toxic Substances Control Act. See attachment 10 of Appendix B.

2.11 Fill Areas

In the late 1800's, the area now known as the "Ironbound Area" , which includes the Pitt Consol site, was a salt marsh (the Newark Salt Marsh) similar to those observed today along the New Jersey Turnpike in northern New Jersey. The Newark Salt marsh had 60 acres filled by 1914 (2B Environmental, 1997). Fill material used to fill the marshes included garbage, ash, slag, refuse and dirt. The draft petition to reclassify groundwater in the Ironbound section of Newark also states, "Regular application of crude oil was applied to standing pools of water in the meadows and elsewhere to kill developing mosquito larvae".

2.12 Current Site Conceptualization

The current conceptual model for the former Pitt Consol site is illustrated in two cross sections, Figures 5 and 6, and summarized below. Groundwater piezometric maps, one for each water bearing unit, are presented in Figure 7 and 8.

- The Pitt Consol site lies within the "Historic Fill" area of Newark.
- The fill (upper water bearing unit) consists of 2 to 10 feet of sand, gravel, silt, construction debris, glass, wood (all of which are often stained black). Tarry material is abundant throughout the subsurface in the fill unit.
- The site is located within the area defined as the "Ironbound Area" which has been petitioned to have groundwater classified as New Jersey Class II-B (non-potable)
- There are no drinking water receptors of site groundwater.

- There are two water bearing units beneath the site. Both the shallow (unconfined) and deep (semi-confined) water bearing units beneath the Pitt Consol site discharge to the Passaic River.
- The shallow water bearing unit is not tidally influenced, flows generally eastward, and flow is influenced by a sewer line that trends along former Roanoke Avenue.
- The deep water bearing unit is tidally influenced on the eastern portion of the site, although the tidal effect is not significant enough to change the hydraulic gradient from west to east. Groundwater flows generally east southeast.
- Material disposed of in the former lagoons may represent a source to groundwater.
- Ashland Chemical, located directly upgradient of the site, has BTEX, chorobenzene, and other chlorinated solvent groundwater contamination.
- Shallow groundwater constituents of concern (COCs), based on comparison with New Jersey Groundwater II-A criteria are arsenic, benzene, acenapthelene, anthracene, benzo(a)anthracene, benzo(a) pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene , benzo(ghi)perylene, chrysene, fluorene, fluoranthene, indeno(1,2,3-cd)pyrene, methylene chloride, and toluene. Other COCs without II-A criteria are napthalene and total phenolics.
- Deep groundwater constituents of concern (COCs), based on comparison with New Jersey Groundwater II-A criteria are: arsenic, lead, benzene, chlorobenzene, 2,4 dimethylphenol, methylene chloride and toluene. Other COCs without II-A criteria are napthalene and total phenolics.

3.0 AREA OF CONCERN IDENTIFICATION

Areas of Concern (AOC's) were defined based upon similarities in the activities, feedstocks, products and wastes that occurred or were managed within each area. Historical Sanborn maps, plant maps and aerial photographs were used to identify these areas. While many of the process, storage and waste disposal units still are identifiable today based on current aerial photographs and field observations, some actual unit boundaries are uncertain and can be estimated only. Chemical constituents of concern for identified AOC's were determined from review of site history, including process, storage and waste disposal practices, coupled with limited soil and groundwater data analysis. Based on the information above, AOC boundaries were outlined on Figure 4 and described in the following table.

AOC	Description	Sampling Proposed?	Map Reference	Constituents of Concern
1	Manufacturing/storage area consisting of process areas, tank farms, UST's, boiler house, laboratory and warehouses	Yes	see Figure 4	PAHs, naphthalene, phenolics, volatiles, As, Pb, TPH
2	Pitch Storage and Tar Tank Farm	Yes	see Figure 4	PAHs, naphthalene, phenolics, volatiles, As, Pb
3	Former Lagoons	Yes	see Figure 4	PAHs, naphthalene, phenolics, volatiles, As, Pb

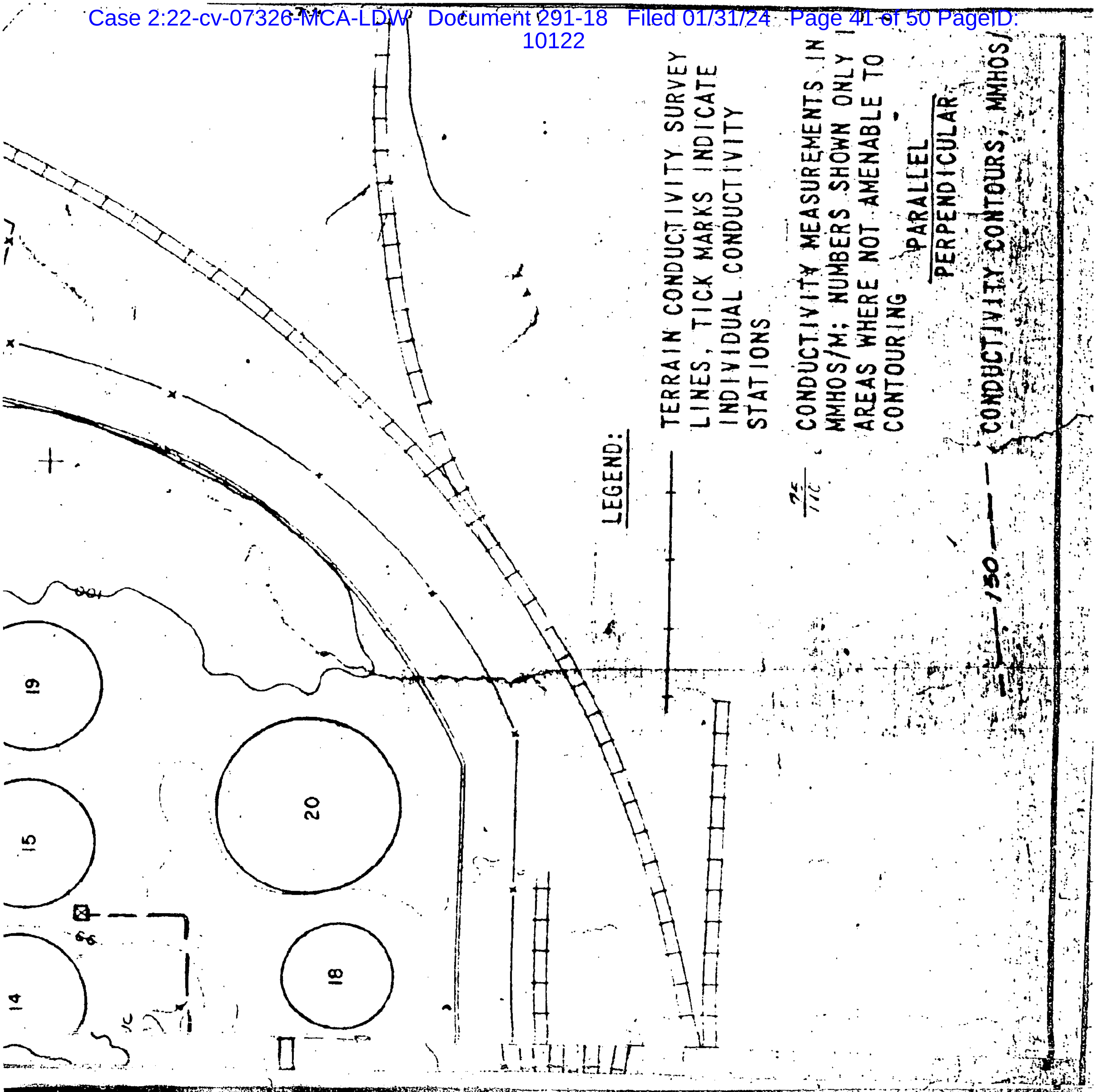
Generally, the chemical constituents of concern detected in shallow water table monitoring wells were:

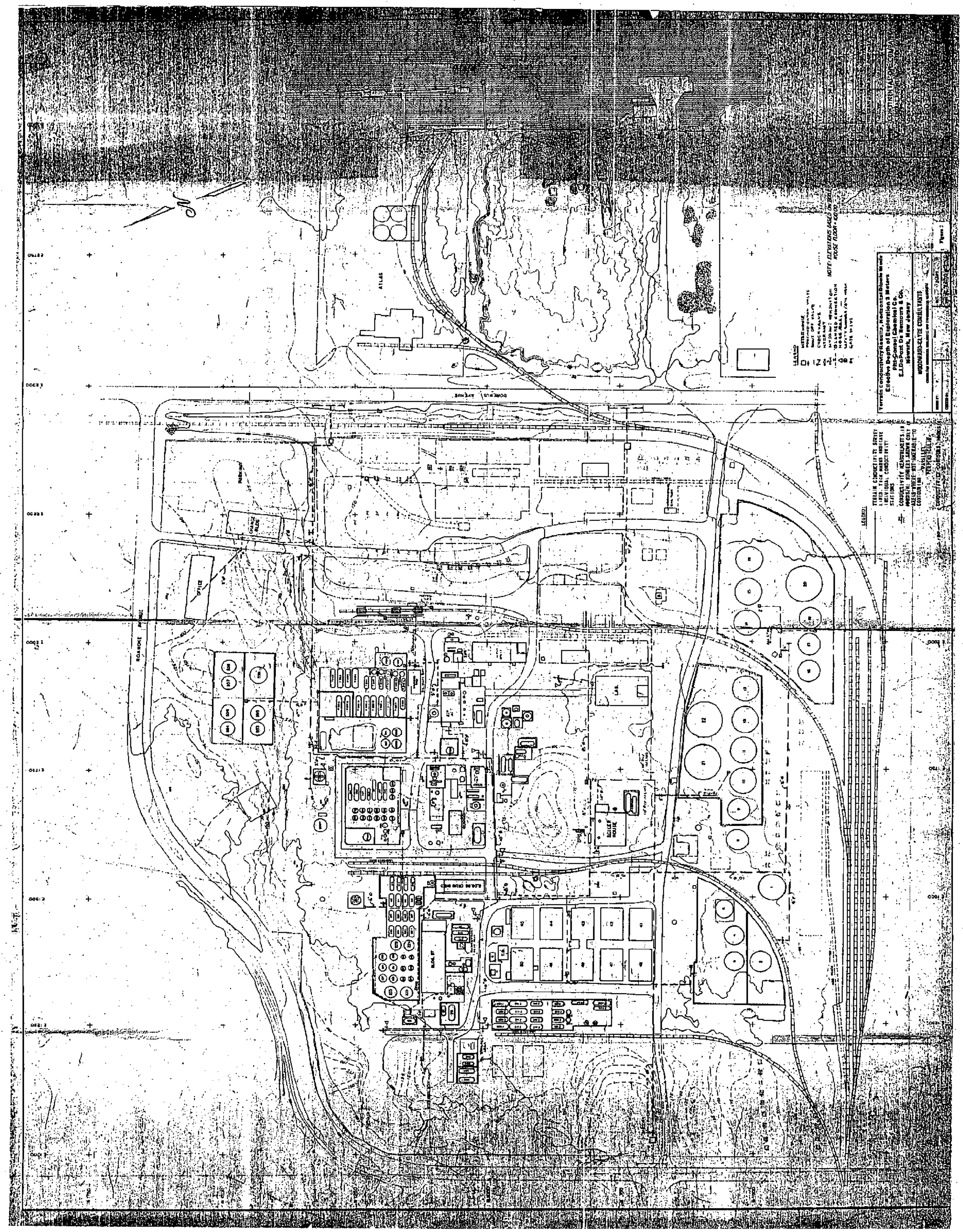
- Benzene
- Toluene
- Methylene Chloride
- Napthalene
- Phenolics
- PAH's
- Arsenic

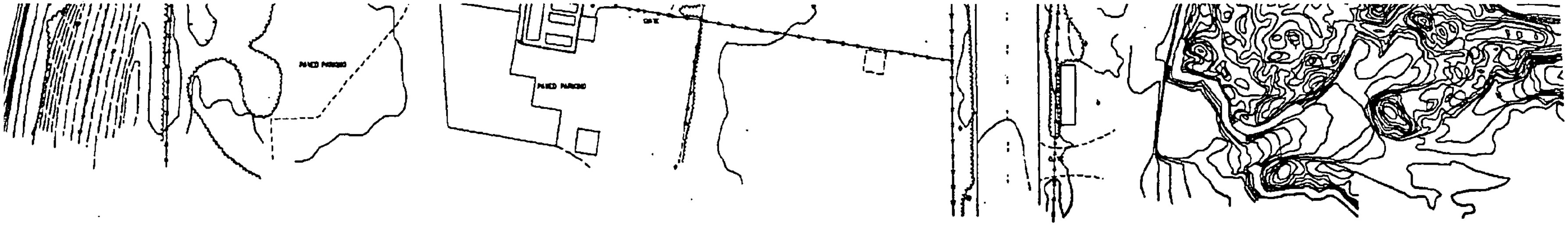
The same constituents of concern were detected in deeper pleistocene sand aquifer monitoring wells with the addition of chlorobenzene and lead.

Figure 4 shows common boundaries between AOC's, indicating that there is no discernible distinction between AOC's based on surficial features, chemical constituent occurrence or soil/groundwater data. In addition, there appears to be no unaffected area between AOC's that could serve as locations for background sampling.

FIGURES

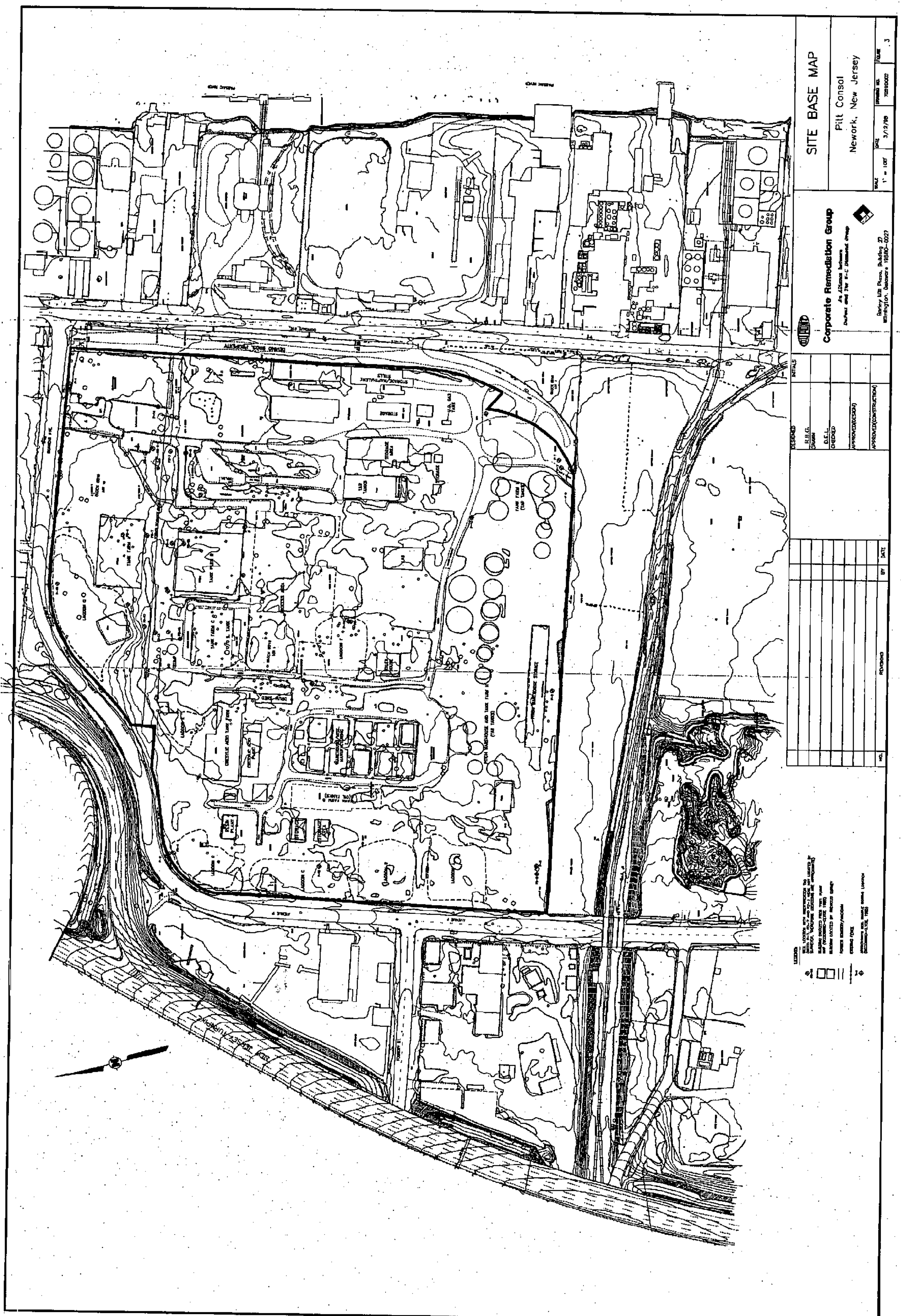

LEGEND:
TERRAIN CONDUCTIVITY SURVEY LINES, TICK MARKS INDICATE INDIVIDUAL CONDUCTIVITY STATIONS
CONDUCTIVITY MEASUREMENTS IN MMHOS/M; NUMBERS SHOWN ONLY IN AREAS WHERE NOT AMENABLE TO CONTOURING
PARALLEL
PERPENDICULAR
CONDUCTIVITY CONTOURS, MMHOS/
130
19
20
15
18
14

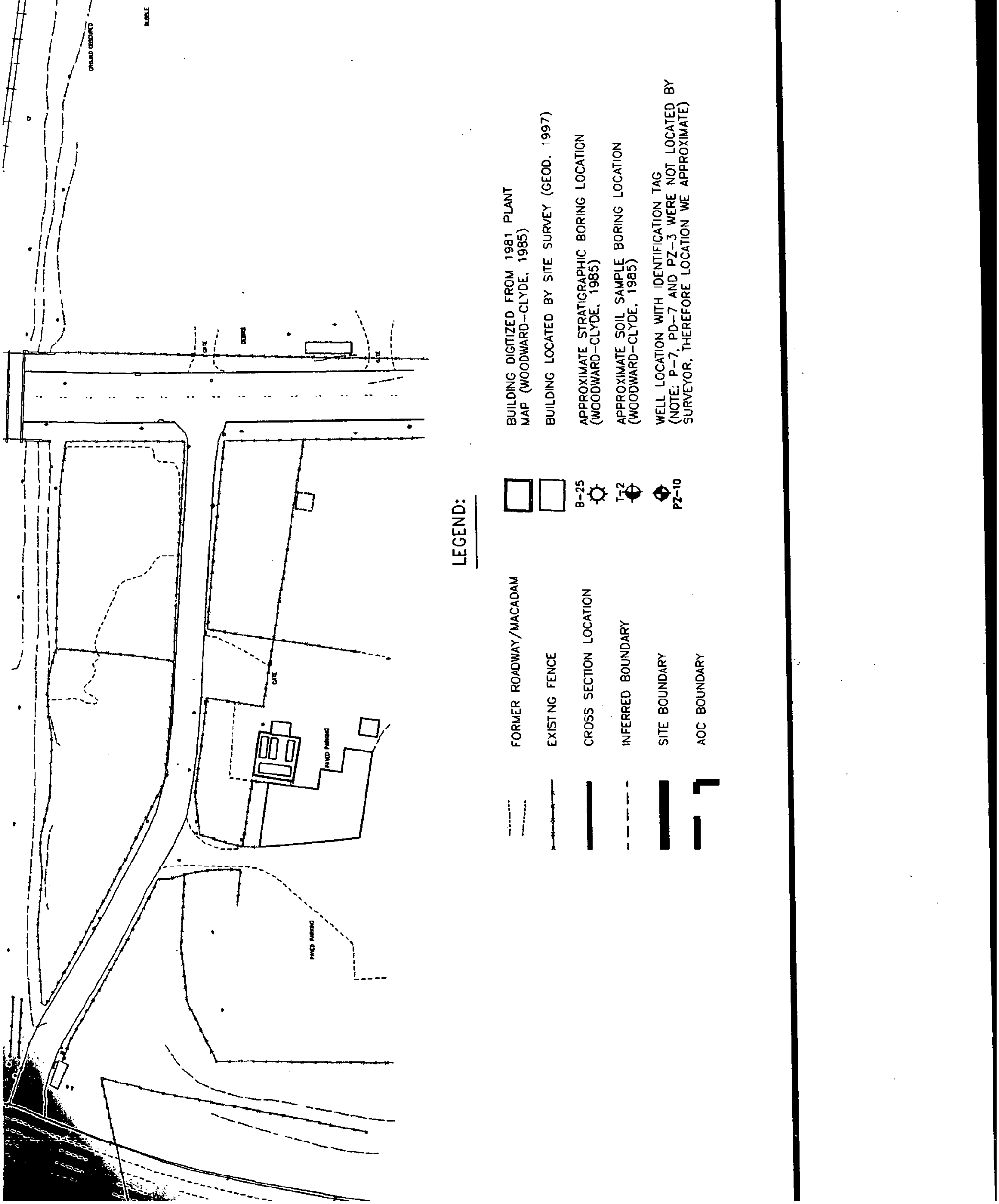


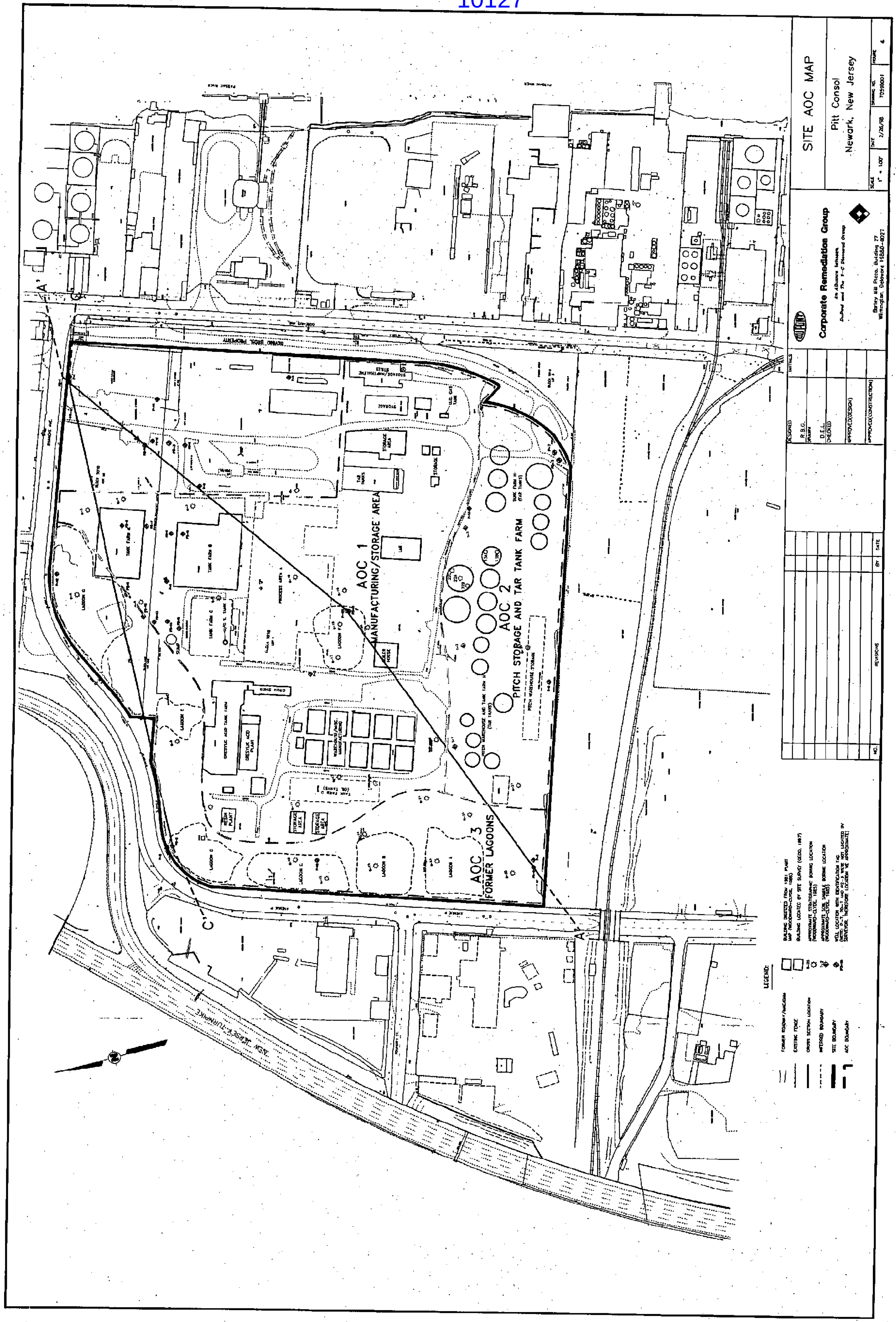


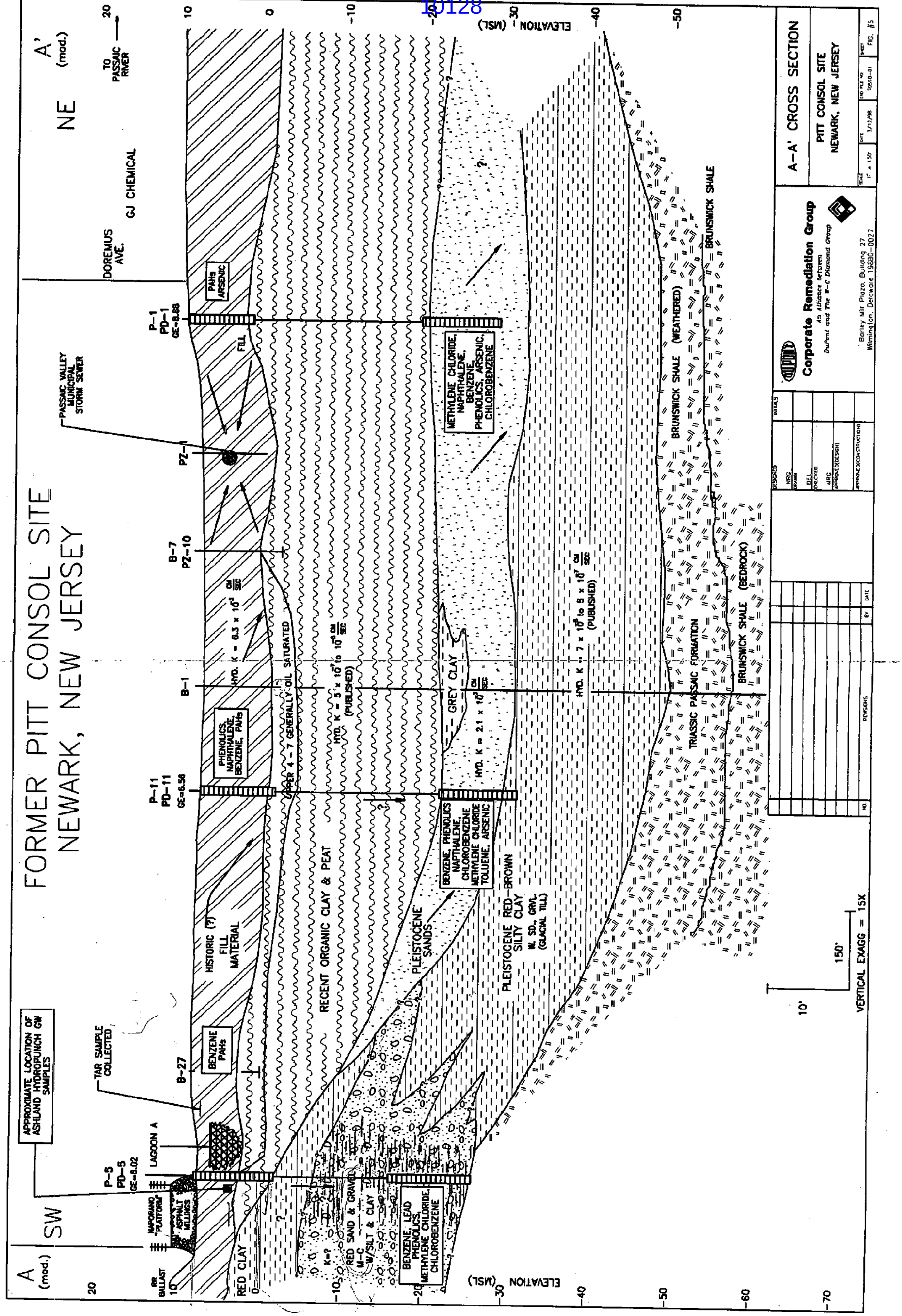
LEGEND:

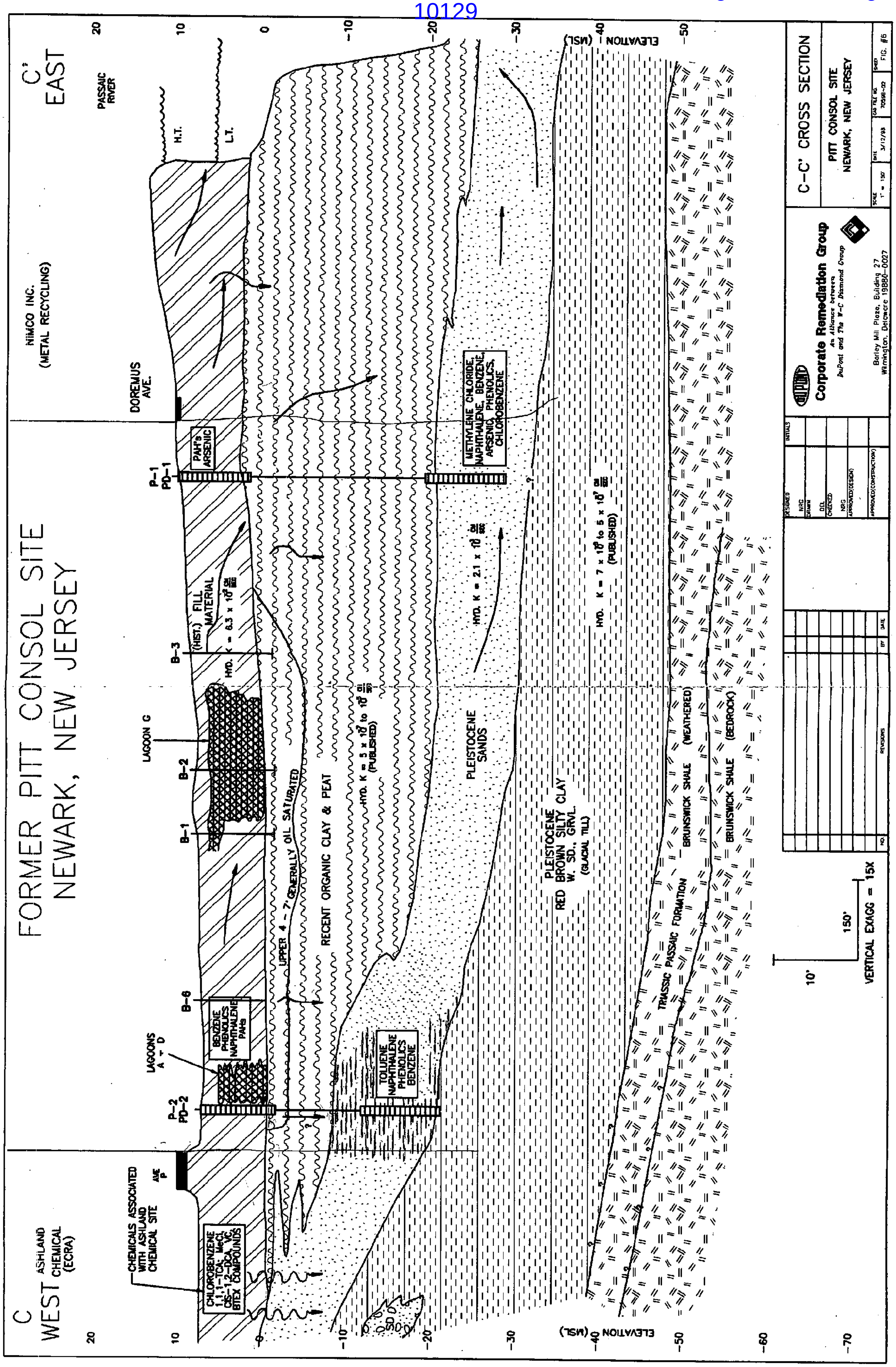
PZ-10	WELL LOCATION WITH INDENTIFICATION TAG (NOTE: P-7, PD-7 AND PZ-3 WERE NOT LOCATED BY SURVEYOR, THEREFORE LOCATIONS ARE APPROXIMATE)
	BUILDING DIGITIZED FROM 1981 PLANT MAP (WOODWARD-CLYDE, 1985)
	BUILDING LOCATED BY PREVIOUS SURVEY
	FORMER ROADWAY/MACADAM
	EXISTING FENCE
T-4	APPROXIMATE SOIL SAMPLE BORING LOCATION (WOODWARD-CLYDE, 1985)


SITE BASE MAP
Pitt Consol
Newark, New Jersey
Corporate Remediation Group


LEGEND:
FORMER ROADWAY/MACADAM
EXISTING FENCE
CROSS SECTION LOCATION
INFERRED BOUNDARY
SITE BOUNDARY
AOC BOUNDARY
BUILDING DIGITIZED FROM 1981 PLANT MAP (WOODWARD-CLYDE, 1985)
BUILDING LOCATED BY SITE SURVEY (GEOD, 1997)
B-25
APPROXIMATE STRATIGRAPHIC BORING LOCATION (WOODWARD-CLYDE, 1985)
T-2
APPROXIMATE SOIL SAMPLE BORING LOCATION (WOODWARD-CLYDE, 1985)
PZ-10
WELL LOCATION WITH IDENTIFICATION TAG (NOTE: P-7, PD-7 AND PZ-3 WERE NOT LOCATED BY SURVEYOR, THEREFORE LOCATION WE APPROXIMATE)
GATE
PAVED PARKING


SITE AOC MAP
Pitt Consol
Newark, New Jersey
Corporate Remediation Group
AOC 1
MANUFACTURING/STORAGE AREA
AOC 2
PITCH STORAGE AND TAR TANK FARM
AOC 3
FORMER LAGOONS
LEGEND:


FORMER PITT CONSOL SITE
NEWARK, NEW JERSEY
A (mod.)
SW
A' (mod.)
NE
TO PASSAIC RIVER
DOREMUS AVE.
GJ CHEMICAL
PASSAIC VALLEY MUNICIPAL STORM SEWER
APPROXIMATE LOCATION OF ASHLAND HYDROPUNCH GW SAMPLES
TAR SAMPLE COLLECTED
LAGOON A
P-5
PD-5
GE=8.02
B-27
P-11
PD-11
GE=6.58
B-1
B-7
PZ-10
PZ-1
P-1
PD-1
GE=8.88
HISTORIC (?) FILL MATERIAL
FILL
RECENT ORGANIC CLAY & PEAT
PLEISTOCENE SANDS
PLEISTOCENE RED-BROWN SILTY CLAY
W. SD., GRVL. (GLACIAL TILL)
GREY CLAY
RED CLAY
RED SAND & GRAVEL
W/SILT & CLAY
BRUNSWICK SHALE (WEATHERED)
BRUNSWICK SHALE
TRIASSIC PASSAIC FORMATION
BRUNSWICK SHALE (BEDROCK)
UPPER 4 - 7 GENERALLY OIL SATURATED
BENZENE PAHs
PHENOLICS, NAPHTHALENE, BENZENE, PAHs
PAHs ARSENIC
BENZENE, PHENOLICS NAPTHALENE, CHLOROBENZENE METHYLENE CHLORIDE TOLUENE, ARSENIC
METHYLENE CHLORIDE, NAPHTHALENE, BENZENE, PHENOLICS, ARSENIC, CHLOROBENZENE
BENZENE, LEAD PHENOLICS, METHYLENE CHLORIDE, CHLOROBENZENE
ELEVATION (MSL)
VERTICAL EXAGG = 15X
150'
10'
A-A' CROSS SECTION
PITT CONSOL SITE
NEWARK, NEW JERSEY
Corporate Remediation Group
An Alliance between DuPont and The W-C Diamond Group
Barley Mill Plaza, Building 27
Wilmington, Delaware 19880-0027


FORMER PITT CONSOL SITE
NEWARK, NEW JERSEY
C
WEST
C'
EAST
ASHLAND CHEMICAL (ECRA)
NIMCO INC. (METAL RECYCLING)
PASSAIC RIVER
DOREMUS AVE.
H.T.
L.T.
CHEMICALS ASSOCIATED WITH ASHLAND CHEMICAL SITE
CHLOROBENZENE 1,1,1-TCA, MeCl, DCE, 1,2-DCA, VC, BTEX COMPOUNDS
LAGOONS A - D
LAGOON G
BENZENE PHENOLICS NAPHTHALENE PAHs
TOLUENE NAPHTHALENE PHENOLICS BENZENE
PAH's ARSENIC
METHYLENE CHLORIDE, NAPHTHALENE, BENZENE, ARSENIC, PHENOLICS, CHLOROBENZENE
P-2 PD-2
B-6
B-1
B-2
B-3
P-1 PD-1
(HIST.) FILL MATERIAL
UPPER 4 - 7' GENERALLY OIL SATURATED
RECENT ORGANIC CLAY & PEAT
PLEISTOCENE SANDS
RED BROWN PLEISTOCENE SILTY CLAY W. SD., GRVL. (GLACIAL TILL)
TRIASSIC PASSAIC FORMATION
BRUNSWICK SHALE (WEATHERED)
BRUNSWICK SHALE (BEDROCK)
ELEVATION (MSL)
VERTICAL EXAGG = 15X
150'
10'
C-C' CROSS SECTION
PITT CONSOL SITE
NEWARK, NEW JERSEY
Corporate Remediation Group
An Alliance between DuPont and The W-C Diamond Group
Barley Mill Plaza, Building 27
Wilmington, Delaware 19880-0027
FIG. #6

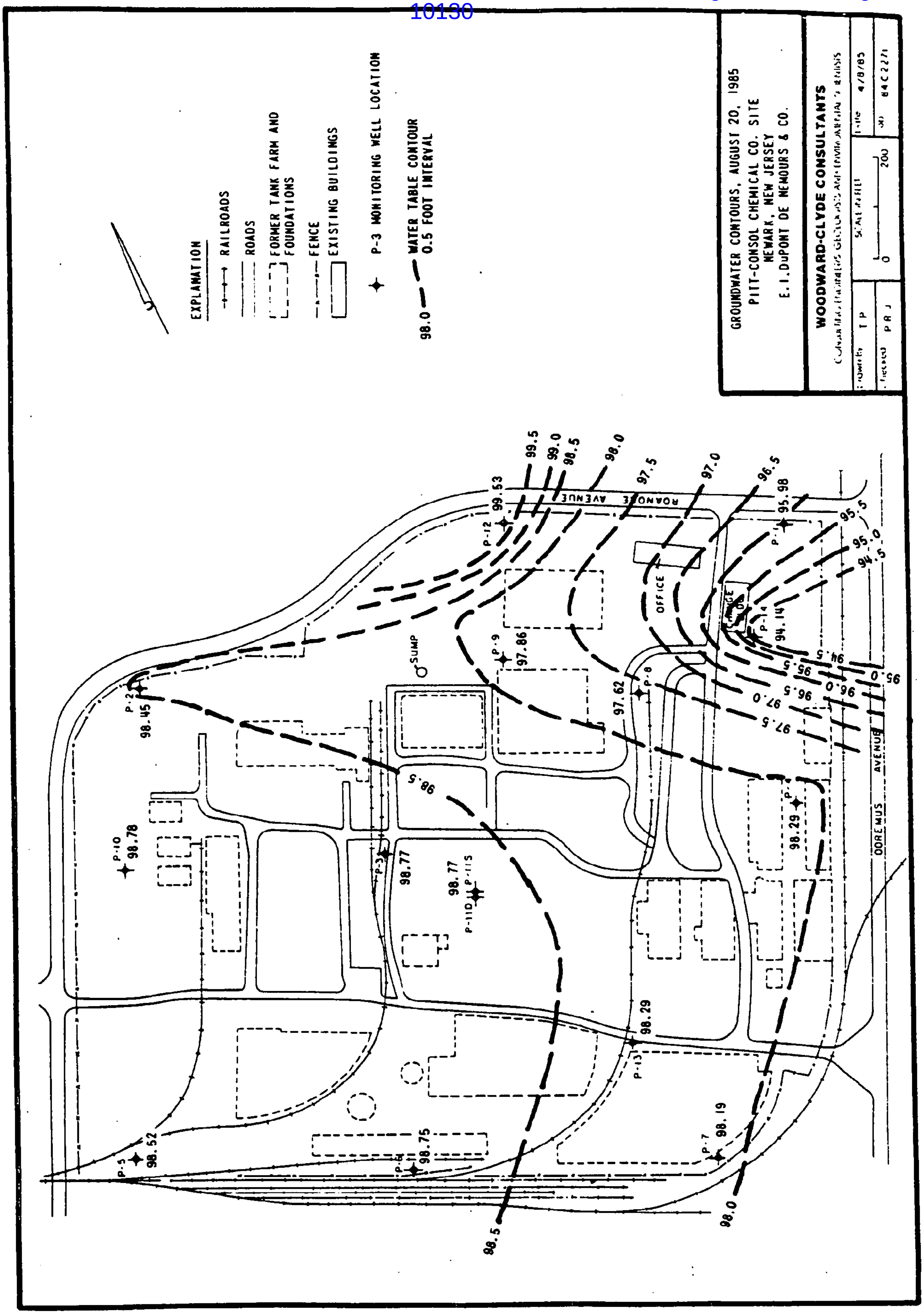

EXPLANATION
RAILROADS
ROADS
FORMER TANK FARM AND FOUNDATIONS
FENCE
EXISTING BUILDINGS
P-3 MONITORING WELL LOCATION
98.0 WATER TABLE CONTOUR 0.5 FOOT INTERVAL
GROUNDWATER CONTOURS, AUGUST 20, 1985
PITT-CONSOL CHEMICAL CO. SITE
NEWARK, NEW JERSEY
E.I. DUPONT DE NEMOURS & CO.
WOODWARD-CLYDE CONSULTANTS
ROANOKE AVENUE
DOREMUS AVENUE
OFFICE
SUMP
P-12 99.53
P-1 95.98
P-14 94.14
P-9 97.86
P-8 97.62
P-2 98.45
P-10 98.78
P-3 98.77
P-11D P-11S 98.77
P-4 98.29
P-13 98.29
P-5 98.52
P-6 98.75
P-7 98.19
99.5
99.0
98.5
98.0
97.5
97.0
96.5
95.5
95.0
94.5

Figure 7

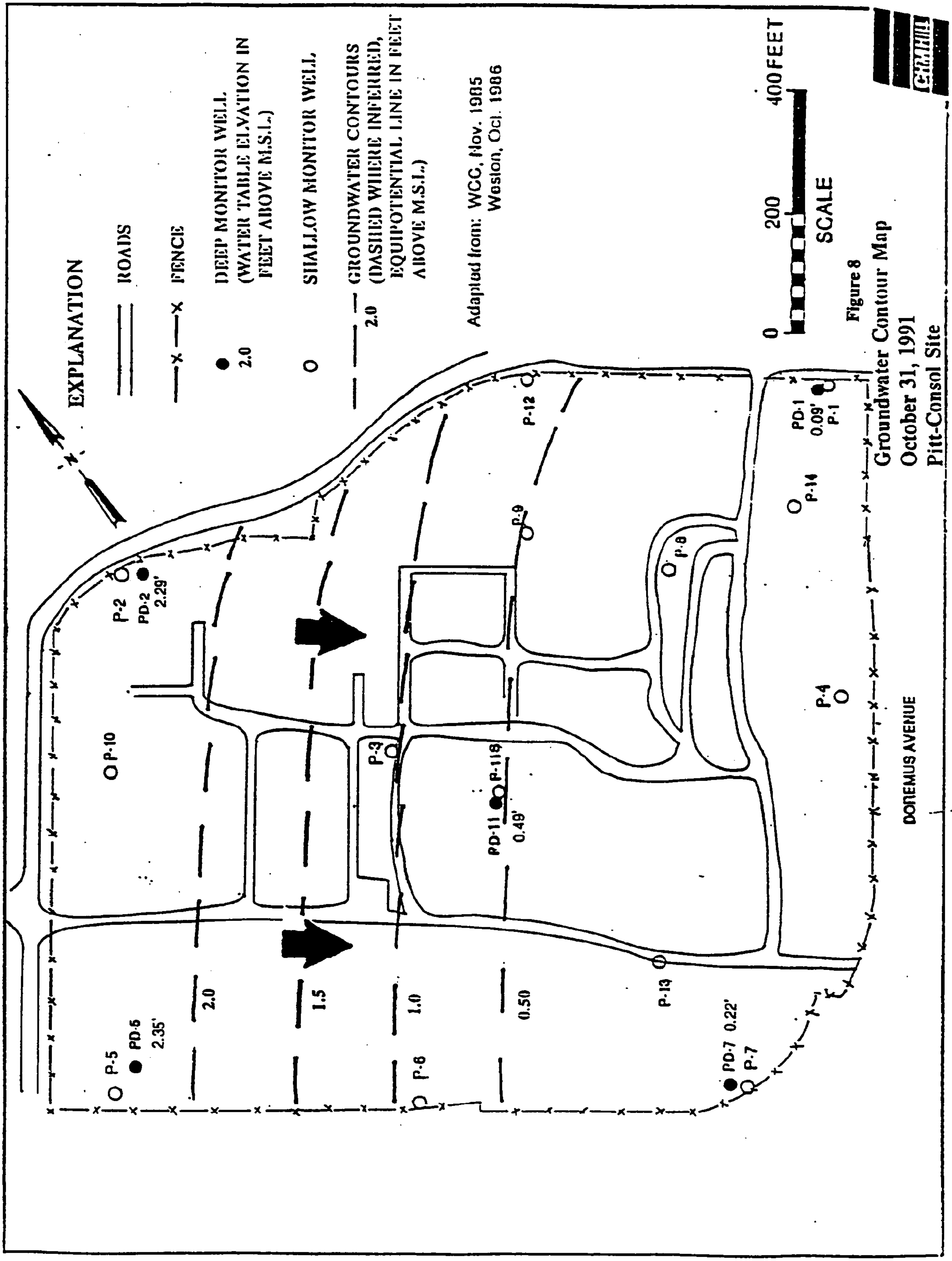


Figure 8
Groundwater Contour Map
October 31, 1991
Pitt-Consol Site